ABSTRACT

The teaching of programming is generally problematic. It has proven to be challenging to both students and teachers alike. Research indicates that this is a universal problem. Some believe this is partly due to the abstract nature of many of the concepts. This difficulty has prompted researchers to investigate tools and approaches that may ease the difficulty of teaching and learning programming.

This thesis describes the design and development of a system for teaching programming skills in a web based environment. The system combines educational principles, visualization and web design and development strategies to produce an interactive web based course for individuals studying Caribbean Secondary Examination Certificate (CSEC) Information Technology. One of the guiding principles of the system is to allow students to have control over their learning by determining the pace at which they advance. The system includes an environment that aids students in developing the basic elements of programming including control structures, documentation, coding, program design and testing. Macromedia Flash MX 2004 is used to provide interaction and develop event driven content. The system is geared to be used either as a teaching aid or a self learning tool by individual students.'

The theory of learning was researched to ensure that the system would be pedagogically sound. The system focuses on the first three levels of Bloom's taxonomy, knowledge, understanding and application.